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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/002,979 | 12/06/2001 | Satoshi Maruyama | 216935US0 | 4984 |
| 22850 | 7590 | 09/20/2007 | | |
| OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | | |
| | | | EXAMINER | |
| | | | CANTELMO, GREGG | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1745 | |
| | | | NOTIFICATION DATE | DELIVERY MODE |
| | | | 09/20/2007 | ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| | | | |
|------------------------------|--------------------------------------|----------------------------------------|--|
| Office Action Summary | Application No. 10/002,979 | Applicant(s) MARUYAMA ET AL. | |
| | Examiner Gregg Cantelmo | Art Unit 1745 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17, 18 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17, 18 and 21-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 9, 2007 has been entered.

Response to Amendment

2. In response to the amendment received September 7, 2007:
- a. Claims 17, 18 and 21-24 are pending;
 - b. The prior art rejections are withdrawn in light of the newly presented claims.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17, 18, 21 and 24 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "typical metal" in claim 21 is a relative term which renders the claim indefinite. The term "typical metal" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in

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the art would not be reasonably apprised of the scope of the invention. Neither the claims nor the specification give a reasonable definition of the term "typical metal" thus the term is held to be indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 17, 21, 22 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshino, of record.

Yoshino discloses a lithium secondary battery comprising a cathode, anode and electrolyte encased in a housing (abstract and figures), wherein the cathode is a lithium cobalt oxide material. Yoshino discloses of a lithiated cobalt oxide cathode wherein Sn is added to the cathode active material in an amount from 0.001-0.1 relative to 0.85-1.0 of cobalt (col. 4, ll. 10-52 and col. 11, ll. 46-52). The electrolyte 8 can be either a liquid electrolyte or a solid electrolyte (col. col. 3, ll. 49-55 as applied to claims 21 and 22).

The cathode includes pvdf binder (col. 19, ll. 1-20 as applied to claim 17).

The anode can be a carbonaceous material (prior art claim 19 as applied to claim 24).

5. Claims 18 and 22-23 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,147,738 (Toyoguchi).

Toyogugchi discloses a lithium secondary battery comprising a cathode, anode and electrolyte encased in a housing (abstract and figures), wherein the cathode is a lithium cobalt oxide material. Toyoguchi discloses of a lithiated cobalt oxide cathode wherein Nb is added to the cathode active material in an amount which includes a specific example of 0.1 relative to cobalt (Table 5). The electrolyte can be a solid electrolyte (col. 6, ll. 14-19). It is held that the Y values in Table 5 are from 0 to 0.4 (as would be reasoned from the full disclosure of the specification) and thus teaches of specific amounts of Nb relative to Co which fall within the claimed range (as applied to claims 21-23 and 18).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Toyoguchi as applied to claim 21 above, and further in view of Liu, of record.

The difference between claim 17 and Toyoguchi is that Toyoguchi does not teach of a pvdf binder.

Toyoguchi discloses adding a binder resin in the example (col. 2, ll. 64-68).

Thus the use of resins in fabricating the lithium composite oxide would have been readily apparent to one of ordinary skill in the art.

Liu discloses that using the pvdf binders therein provides for a product having good physical properties and excellent conductive properties (abstract).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Toyoguchi by selecting the binder to be a pvdf binder as taught by Liu since it would have provided an electrode having good physical properties and excellent conductive properties. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S.

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327, 65 USPQ 297 (1945) See also In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

10. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Toyoguchi as applied to claim 21 above, and further in view of Liu, of record.

The difference between claim 24 and Toyoguchi is that Toyoguchi does not teach of a carbonaceous anode material.

Carbonaceous anode materials are well known in the art as shown by Linden (page 36.5 and Fig. 36.1) and the selection of such would have been well within the skill of the ordinary worker in the art.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Toyoguchi by selecting the anode to be a carbonaceous material since such materials are known alternative anode materials which are commonly used in lithium batteries as taught by Linden and since the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945) See also In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

Response to Arguments

11. Applicant's arguments with respect to claims 17, 18 and 21-24 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

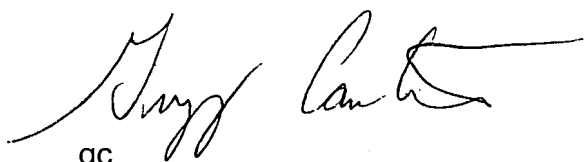
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12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. JP 03-201368A is the Japanese equivalent to Toyoguchi above and table 5 therein is held to show the relationship between the various amounts of Nb added relative to cobalt.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is 571-272-1283. The examiner can normally be reached on Monday to Thursday, 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



gc

September 12, 2007

Gregg Cantelmo
Primary Examiner
Art Unit 1745